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FACSIMILE COVER SHEET

July 15, 2002

Receiver: Examiner B. Prieto

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Re: Application No.: 09/164,388
REDUCING CPU OVERHEAD IN THE FORWARDING PROCESS
Our File No.: CISCPO54

Pages Including Cover Sheet(s): 4

MESSAGE:

Please see attached outline of issues to be discussed.

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Hon Wah Chin

Attorney Docket No.: CISCPO54

Application No.: 09/164,388

Examiner: Prieto, B.

Filed: September 30, 1998

Group: 2152

Title: REDUCING CPU OVERHEAD IN THE
FORWARDING PROCESS

ISSUES TO BE DISCUSSED

1) PATENTABILITY OVER THE CITED ART:

As described in Applicant's specification, the traditional router has several potentially undesirable characteristics. First, an inbound port of a router typically has a single inbound queue associated therewith. Second, when a packet is forwarded, a single packet or entry in the inbound queue is transferred by an inbound controller to an outbound controller. Third, when the packet is received by the outbound controller, information associated with a single packet is stored in an outbound queue.

Each of the independent claims provides at least one of the following advantages or limitations over the prior art. First, a plurality of inbound queues is provided for a single inbound port. An inbound packet is therefore classified in one of the plurality of inbound queues to enable the inbound packet to be stored in the appropriate queue. Second, one of the plurality of inbound queues is transferred to an outbound controller and/or outbound queue capable of storing (or identifying) a multiplicity of inbound queues. In other words, a queue of packets rather than a single packet is transferred to the outbound controller and/or an associated outbound queue. Third, in some embodiments of the invention, it is possible to encrypt an inbound queue prior to transmission by an outbound controller. One or more of the above-described limitations are present in each of the claims.

For instance, independent claim 1 recites a method for providing an inbound controller for a router having an inbound port and an outbound port. More specifically, claim 1 recites, in relevant part, providing a plurality of inbound queues for an inbound port...classifying the inbound packet in a selected one of the plurality of inbound queues according to packet sorting criteria, storing the inbound packet in the selected one of the plurality of inbound queues, and determining when one of the plurality of inbound queues is ready to be moved to an outbound queue capable of storing a multiplicity of inbound queues.

2) CALVIGNAC

Calvignac relates to a mechanism for transferring messages between source and destination users through a shared memory. See Title. More specifically, the mechanism is a device that includes a common bus to which a memory with a plurality of independent buffers, a memory interface and a central control apparatus are connected. The memory interface receives messages from source users, stores the messages in selected buffers and chains the buffers together. The central control apparatus generates inbound message queues and outbound message queues in response to commands which it receives from the memory interface. See Abstract.

Calvignac neither discloses nor suggests a mechanism for use with a router having at least one inbound port and at least one outbound port. Moreover, Calvignac neither discloses nor suggests a method for providing or implementing an inbound or outbound controller for a router. More particularly, Calvignac neither discloses nor suggests an outbound queue that is capable of storing or otherwise identifying a plurality of inbound queues. Rather, as the Examiner indicates, Calvignac discloses a prior art outbound queue that stores a plurality of messages rather than storing or otherwise identifying a plurality of inbound queues. Similarly, as the Examiner admits, Calvignac neither discloses nor suggests transferring one of the plurality of inbound queues to such an outbound queue, and therefore neither discloses nor suggests determining when one of a plurality of inbound queues is ready to be moved to an outbound queue. Rather, col. 12, lines 26-27 indicate that Calvignac merely discloses enqueueing a single message onto an outbound queue, and therefore teaches away from transferring or enqueueing an entire queue of packets. In addition, Calvignac neither discloses nor suggests providing a plurality of inbound queues for an inbound port and classifying a packet in one of the plurality of inbound queues.

Will further limit the claims

3) KURITA:

Kurita fails to cure the deficiencies of the primary reference. Kurita merely discloses a scheduling apparatus and scheduling method. Thus, Kurita neither discloses nor suggests one of the claimed methods of providing an inbound or outbound controller for a router. Moreover, Kurita fails to disclose the transferring of an entire queue to an outbound queue. On the contrary, col. 9, lines 43-45 indicate that a single packet is "picked up" and transmitted. Therefore, Kurita also teaches away from the presently claimed invention.

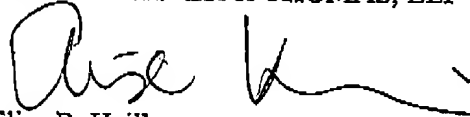
4) FINKELSTEIN:

With respect to independent claim 43, Finkelstein fails to cure the deficiencies of the primary references. More specifically, Finkelstein does not disclose encrypting an inbound queue. Rather, as disclosed in col. 6, line 52-col. 7, line 35, Finkelstein appears to disclose encrypting each packet rather than encrypting a queue of packets, and therefore teaches away from the claimed invention.

SUMMARY

Please contact the undersigned to schedule a teleconference to discuss the above-referenced issues.

Respectfully submitted,
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